

★令和6年度(2024年) 卒論3年次学生「山口紗奈さん」の研究成果が、「生命科学」の国際的専門誌”Molecules”に掲載されました!!!



Article

Systemic Administration of the Phytochemical, Myricetin, Attenuates the Excitability of Rat Nociceptive Secondary Trigeminal Neurons

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Abstract: While the modulation of the excitatory and inhibitory neuronal transmission by the phytochemical flavonoid, myricetin (MYR), has been noted in the nervous system, the way in which MYR affects the excitability of nociceptive sensory neurons in vivo remains to be established. This study aimed to explore whether administering MYR intravenously, in acute doses, to rats, diminishes the excitability of SpVc wide-dynamic range (WDR) spinal trigeminal nucleus caudalis (SpVc) neurons in response to nociceptive and non-nociceptive mechanical stimulation in vivo. Recordings of extracellular single units were obtained from SpVc neurons when orofacial mechanical stimulation was applied to anesthetized rats. The average firing rate of SpVc WDR neurons, to both non-noxious and noxious mechanical stimuli, was significantly and dose-dependently inhibited by MYR (1–5 mM, intravenously), and the maximum reversible inhibition of the discharge frequency, for both non-noxious and noxious mechanical stimuli, occurred within 5–10 min. The suppressive effects of MYR continued for about 20 min. These findings indicate that an acute, intravenous administration of MYR reduces the SpVc nociceptive transmission, likely through the inhibition of the CaV channels and by activating the Kv channels. Therefore, MYR might be utilized as a treatment for trigeminal nociceptive pain, without causing side effects.



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ハイライト: 野菜や果物に含まれるフラボノイドの一つであるミリセチンはこれまでに中枢神経系の神経細胞のカルシウムチャンネルを阻害、カリウムチャンネルを促進することで神経細胞の興奮性を抑制する可能性は知られていた。今回著者らは疼痛伝達に重要な役割を果たす広作動域ニューロンの興奮がミリセチンの静脈内投与により、可逆的濃度依存性に抑制されることを明らかにした。本研究の成果はミリセチンが臨床の場において新たな副作用のない鎮痛薬となる可能性と補完代替医療に貢献することを示唆している。